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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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10/664,962

09/22/2003

Shunpei Yamazaki

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4946

31780

7590

05/27/2005

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EXAMINER

NGUYEN, TUAN H

ART UNIT

PAPER NUMBER

2813

DATE MAILED: 05/27/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

25

Office Action Summary	Application No.		Applicant(s)	
	10/664,962		YAMAZAKI ET AL.	
	Examiner		Art Unit	
	Tuan H. Nguyen		2813	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 11 March 2005.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-41 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-41 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
 Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
 Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| Paper No(s)/Mail Date <u>9/03, 12/03, 3/04, 8/04</u> | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Specification

Applicant is reminded of the proper language and format for an abstract of the disclosure.

The abstract should be in narrative form and generally limited to a single paragraph on a separate sheet within the range of 50 to 150 words. It is important that the abstract not exceed 150 words in length since the space provided for the abstract on the computer tape used by the printer is limited. The form and legal phraseology often used in patent claims, such as "means" and "said," should be avoided. The abstract should describe the disclosure sufficiently to assist readers in deciding whether there is a need for consulting the full patent text for details.

The language should be clear and concise and should not repeat information given in the title. It should avoid using phrases which can be implied, such as, "The disclosure concerns," "The disclosure defined by this invention," "The disclosure describes," etc.

The abstract of the disclosure is objected to because it is not limited to a single paragraph. Correction is required. See MPEP § 608.01(b).

Claim Objections

Claim 13 is objected to because of the following informalities: In claim 13, line 6, "conductive film" (first occurrence) should be changed to -- conductive barrier film --.

Appropriate correction is required.

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

Art Unit: 2813

A person shall be entitled to a patent unless –

(e) the invention was described in a patent granted on an application for patent by another filed in the United States before the invention thereof by the applicant for patent, or on an international application by another who has fulfilled the requirements of paragraphs (1), (2), and (4) of section 371(c) of this title before the invention thereof by the applicant for patent.

The changes made to 35 U.S.C. 102(e) by the American Inventors Protection Act of 1999 (AIPA) and the Intellectual Property and High Technology Technical Amendments Act of 2002 do not apply when the reference is a U.S. patent resulting directly or indirectly from an international application filed before November 29, 2000. Therefore, the prior art date of the reference is determined under 35 U.S.C. 102(e) prior to the amendment by the AIPA (pre-AIPA 35 U.S.C. 102(e)).

Claims 1-14, 28-41 are rejected under 35 U.S.C. 102(e) as being anticipated by Chae.

See Chae, figs. 5A and related text in [0037] which discloses the claimed display device including a conductive film barrier film 160a of Ti, and a wiring containing Cu 160b over the conductive barrier film 160a, the width of the wiring containing Cu 160b is narrower than that of the conductive barrier film 160a, and a top surface of the conductive barrier film 160a is not aligned with that of the wiring containing Cu 160b; an insulating barrier film 150 of silicon nitride is covered with top surface and a side surface of the wiring containing Cu 160b.

With respect to claim 3, the conductive film is considered as a bottom portion of the film 160a having the width aligns with that of the conductive barrier film 160a.

Art Unit: 2813

With respect to claims 4, 5, 6, fig. 4 shows top view of the above display device with a signal line 174 intersects a scan line 162, and both signal line 174 and scan line 162 have a double-layered structure of a copper layer as an upper layer and a barrier layer as a lower layer (see paragraph [0034] and fig. 4).

With respect to claims 7-9, it is well-known to recognize that the signal line must be supplied with current or voltage writing system for operating the device.

With respect to claims 10-12, figs. 4-5A and related text shows the same display device comprising a light emitting element and a TFT "T" connected to the light emitting element having the source, drain, gate 176, 178, 160 of double-layered structure of copper over barrier layer of Ti.

With respect to claim 13, fig. 5A shows semiconductor layer 170 having ohmic contact (impurity doped) layer 170b on an insulating surface 150, and source/drain electrode 176, 178 connects to the ohmic contact (impurity doped) layer 170b.

With respect to claim 14, paragraph [0035] clearly discloses that the terminals are connected to the barrier layer and a side of a copper layer; therefore the terminals are not overlapped with the copper layer.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the

Art Unit: 2813

invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 3, 4, 6, 8, 9, 10, 11, 13, 14-32, 35, 36, 38, 40, 41 are rejected under 35 U.S.C. 103(a) as being unpatentable over Chae in view of Segawa et al..

Chae, figs. 4, 5A and related text as explained above, teaches substantially the claimed display device except the use of laminated film of Ti and at least one of TiN, TaN, TiC, TaC, and WN for the conductive film and the conductive barrier film.

Segawa et al., in a related semiconductor device shown in fig. 1, teaches the use of either TaN, Ta, Ti, TiN, W, WXN or laminated film thereof for barrier metal film 4 to prevent the diffusion of copper 2 in the copper wiring structure.

It would have been obvious to one having ordinary skill in the art at the time the invention was made to have used the laminated film as suggested by Segawa et al. in Chae structure for preventing diffusion of copper, avoiding operation failures.

With respect to claims 15-16, it would have been obvious to those skilled in the art at the time the invention was made to have connected the terminal with the wiring directly or indirectly through conductive resin which is commercial available.

With respect to claims 17, 18, it would have been obvious to those skilled in the art at the time the invention was made to have used copper with laminated barrier layer in integrated circuit wiring, including a protective circuit.

Double Patenting

The nonstatutory double patenting rejection is based on a judicially created doctrine grounded in public policy (a policy reflected in the statute) so as to prevent the unjustified or improper timewise extension of the "right to exclude" granted by a patent and to prevent possible harassment by multiple assignees. See *In re Goodman*, 11 F.3d 1046, 29 USPQ2d 2010 (Fed. Cir. 1993); *In re Longi*, 759 F.2d 887, 225 USPQ 645 (Fed. Cir. 1985); *In re Van Ornum*, 686 F.2d 937, 214 USPQ 761 (CCPA

Art Unit: 2813

1982); *In re Vogel*, 422 F.2d 438, 164 USPQ 619 (CCPA 1970); and, *In re Thorington*, 418 F.2d 528, 163 USPQ 644 (CCPA 1969).

A timely filed terminal disclaimer in compliance with 37 CFR 1.321(c) may be used to overcome an actual or provisional rejection based on a nonstatutory double patenting ground provided the conflicting application or patent is shown to be commonly owned with this application. See 37 CFR 1.130(b).

Effective January 1, 1994, a registered attorney or agent of record may sign a terminal disclaimer. A terminal disclaimer signed by the assignee must fully comply with 37 CFR 3.73(b).

Claims 1-41 provisionally rejected under the judicially created doctrine of obviousness-type double patenting as being unpatentable over claims 1-17 of copending Application No. 10/659,585. Although the conflicting claims are not identical, they are not patentably distinct from each other because they are both directed to the use of laminated barrier layer and copper film for wiring in semiconductor device.

This is a provisional obviousness-type double patenting rejection because the conflicting claims have not in fact been patented.


The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. Kado et al., Fang et al., Chen et al. disclose the use of laminated barrier layer.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Tuan H. Nguyen whose telephone number is 571-272-1694. The examiner can normally be reached on 9AM-5:30PM.

Art Unit: 2813

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Carl Whitehead Jr. can be reached on 571-272-1702. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).


Tuan H. Nguyen
Primary Examiner
Art Unit 2813